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OPINION ARTICLE

REVISED Moral injury and the four pillars of bioethics [version 4; peer review: 1 approved, 1 approved with reservations]

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Abstract

Healthcare providers experience moral injury when their internal ethics are violated. The routine and direct exposure to ethical violations makes clinicians vulnerable to harm. The fundamental ethics in health care typically fall into the four broad categories of patient autonomy, beneficence, nonmaleficence, and social justice. Patients have a moral right to determine their own goals of medical care, that is, they have autonomy. When this principle is violated, moral injury occurs. Beneficence is the desire to help people, so when the delivery of proper medical care is obstructed for any reason, moral injury is the result. Nonmaleficence, meaning do no harm, has been a primary principle of medical ethics throughout recorded history. Yet today, even the most advanced and safest medical treatments are associated with unavoidable, harmful side effects. When an inevitable side effect occurs, the patient is harmed, and the clinician is also at risk of moral injury. Social injustice results when patients experience suboptimal treatment due to their race, gender, religion, or other demographic variables. While minor ethical dilemmas and violations routinely occur in medical care and cannot be eliminated, clinicians can decrease the prevalence of a significant moral injury by advocating for the ethical treatment of patients, not only at the bedside but also by addressing the ethics of political influence, governmental mandates, and administrative burdens on the delivery of optimal medical care. Although clinicians can strengthen their resistance to moral injury by deepening their own spiritual foundation, that is not enough. Improvements in the ethics of the entire healthcare system are necessary to improve medical care

Open Peer Review

Approval Status ✓ ?

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version 1 26 Jul 2019	? view	? view

1. **Lindsay B Carey**, La Trobe University, Melbourne, Australia

2. **Jan Helge Solbakk**, University of Oslo, Oslo, Norway

Any reports and responses or comments on the article can be found at the end of the article.

and decrease moral injury.

Keywords
moral injury, burnout, bioethics

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REVISED **Amendments from Version 3**

This article update softens the terminology around moral injury and incorporates a more expansive, multidimensional perspective. Additional examples demonstrate how repetitive minor ethical lapses accumulate over time, gradually eroding moral foundations. The conclusion focuses more on the four central bioethics pillars that provide this moral grounding. Further revisions address feedback on avoiding overmedicalization and better illustrating realistic moral compromises in clinical contexts. The updated framework aims for greater complexity while retaining discernment categories to direct support efforts. As understanding continues to evolve, these refinements represent an improved balance regarding the sensitivity yet importance of moral injury phenomena in healthcare.

Any further responses from the reviewers can be found at the end of the article

Introduction

Moral injury occurs when a person experiences an immoral event that disrupts their fundamental moral integrity. Injuries can be self-inflicted by intentionally doing something wrong or coming about as collateral damage through observation of an actual or perceived action that violates an internal sense of right and wrong. Those suffering from moral injury have a disruption of their sense of morality, with consequences impacting their capacity to behave morally. The injury reduces their capacity to think of themselves as a moral, good person (Yan, 2016).

Unlike post-traumatic stress disorder (PTSD), which is typically associated with the experience of physical harm or threat, moral injury involves the reaction of military veterans to the participation in or observation of profound ethical transgressions occurring during wartime (Shay & Munroe, 1999). It is the lasting psychological, biological, spiritual, behavioral, and social effects of perpetrating, failing to prevent, or bearing witness to troubling acts that violate deeply held moral beliefs and expectations (Litz *et al.*, 2009).

It is critical to avoid overly medicalizing moral injury or perceiving it strictly as a diagnosis and disorder. While moral injury manifests in psychological and spiritual distress, it is not cured in the traditional sense using conventional medical interventions. Moral injury is multifaceted, involving ethical, psychological, social, and spiritual dimensions. It reflects a profound crisis in personal morality and integrity. It impacts individuals holistically, affecting their biological, emotional, relational, and existential spheres.

Healthcare professionals play a vital role in recognizing and responding to moral injury, yet their approach should be broad and multidisciplinary. This approach goes beyond clinical treatment and involves supporting ethical reflection, providing spiritual care, and advocating for systemic changes in healthcare practices.

Our aim is not to label or diagnose moral injury per se, but to elucidate the types of profound ethical transgressions that can precipitate this crisis of moral integrity. By framing moral injury as a human, rather than a strictly medical condition, we advocate for broader, more encompassing supportive approaches. This perspective acknowledges the complexity of moral injury and underscores the need for a compassionate, empathetic, and ethically informed response within the healthcare sector.

The identification of moral injury in veterans relies on three factors: a betrayal of what is right, carried out by someone who holds legitimate authority (e.g., a leader) and occurs in a high-stakes situation (Shay, 2014). Furthermore, it is not just an incidental injury but an ongoing syndrome resulting from the physical, psychological, social, and spiritual harm from such moral transgressions (Jinkerson, 2016).

Moral injury, however, has not been limited to those exposed to the atrocities of war. It has also been evaluated in refugees, healthcare workers, and adolescents transitioning to adults (Chaplo *et al.*, 2019). In these diverse groups, while moral injury is recognized as a distinct entity from other psychological conditions, such as post-traumatic stress disorder, the diagnosis relies on poorly defined, generalized criteria similar to that used for combat veterans. While minor ethical dilemmas and lapses in judgment are commonplace, these alone may not be sufficient to cause moral injury. The moral violations precipitating moral injury tend to be severe transgressions that fundamentally undermine one's moral integrity. Symptom scales have been developed for military personnel, adolescents, and refugees, but no specific diagnostic criteria exist for healthcare workers (Chaplo *et al.*, 2019; Koenig *et al.*, 2018; Nickerson *et al.*, 2018).

The optimal way to address moral injury remains unclear. Proposed approaches include participating in support groups, building personal character through reflection, keeping a diary, and incorporating PTSD treatments used for veterans. However, the effectiveness of these approaches is unknown. A recent scoping review (Jones *et al.*, 2022) highlights that while interest in moral injury has grown exponentially in recent years, high-quality empirical studies on the effectiveness of interventions are still lacking. Compassion-focused therapy, eye movement desensitization and reprocessing, schema therapy, and mindfulness have all been utilized to address moral injury. However, there is currently no consensus on the optimal approach, with providers frequently blending multiple therapies. The review also noted that providers needed 12–16 sessions to adequately treat the moral injury, longer than some standardized PTSD protocols, reinforcing that moral injury may require different considerations than PTSD. Finally, there is a need for greater clinician education on the diagnosis of moral injury as well as outcome measures to properly evaluate the spectrum of psychosocial and spiritual impacts of interventions. Developing and empirically testing

interventions targeted specifically to moral injury in healthcare workers remains an important research priority.

A maxim of medicine is that a correct diagnosis is half the cure. In the case of moral injury, as it specifically applies to medical professionals, we propose that violating the four pillars of bioethics forms the foundation of moral injury. We propose a framework for moral injury in health care based on the four pillars of bioethics (Beauchamp & Childress, 2019). These pillars are patient autonomy, beneficence, nonmaleficence, and social justice. They serve as an effective foundation for evaluating moral behavior in medicine. Our framework clarifies the meaning of moral injury in medicine. Moral injury occurs when a physician, nurse, or other health care provider participates in or witnesses a significant violation of one or more of these core principles. Strategies focused on repairing the breach of these principles of morality in health care may be the best way to heal the injury. Improving the recognition of and reflection upon the moral stressors clinicians encounter in their practice may prevent moral injury from progressing. This framework will help more clearly define moral injury in medical professionals, allowing the development of methods specific to those working in health care.

Moral residue, failure, and distress are all related to moral experiences, but they have distinct meanings. Moral residue refers to the lingering emotional and psychological impact of being involved in or witnessing morally challenging situations. It is the residue left behind after a moral dilemma or ethical conflict. In contrast, moral failure is intentionally or unintentionally violating one's moral principles or ethical standards. It is a personal failure to uphold the values one believes in (Tessman, 2020). Moral distress, meanwhile, is the psychological and emotional anguish that arises from being unable to act following one's moral beliefs due to external constraints or conflicting obligations. It is the self-directed distress experienced in response to perceived involvement in a situation that is morally undesirable (Campbell *et al.*, 2016). These concepts are related to, but distinct from, moral injury, which refers to profound and lasting psychological and spiritual harm resulting from acts of moral transgression, betrayal, or witnessing atrocities (Boudreau, 2011). Moral injury involves profound disruption across biological, psychological, social, and spiritual dimensions. As outlined by Hodgson and Carey (Hodgson & Carey, 2017), moral injury should be conceptualized as an "eclectic of injuries" spanning physiological, emotional, relational, and religious/spiritual dimensions. Each dimension has associated symptoms, some overlapping and some unique. Fully capturing the complex impacts requires acknowledging moral injury as a bio-psycho-social-spiritual syndrome.

While minor ethical dilemmas and violations may commonly occur in healthcare, the type of profound, grievous moral transgression required to cause moral injury is less frequent. Moral injury results explicitly when there is a severe betrayal of moral beliefs and ethical standards, not just an everyday lapse or poor judgment. The moral violations that precipitate moral injury are severe enough to fundamentally challenge one's moral integrity and capacity for moral behavior. Examples include participating in dishonest billing practices, knowingly covering up a medical error, or conducting unwanted procedures. Moral injury aligns with egregious breaches, not trivial inconsistencies in morality. Moral injury can also result from the accumulation of an overwhelming number of smaller incidents, i.e. death by a thousand cuts. This article focuses primarily on the effect of the accumulation of a large number of minor insults leading to a severe situation where the bioethical pillars begin to fall and give rise to the syndrome of moral injury.

Patient autonomy

The principle of respect for autonomy holds that each person with the capacity has the right to make their own decisions, and providers have a moral obligation to respect this right. In the clinician-patient relationship, patient autonomy can be especially vulnerable. This principle is often at the forefront of ethical concerns in health care (Entwistle *et al.*, 2010; Stammers, 2015).

A compromise in patient autonomy can result in a moral transgression, regardless of whether or not the perceived event is an actual violation. For example, children presenting to the emergency department may openly voice a desire not to get an injection or an intravenous line. Although it is recognized that the decision of the legal caregiver overrides that of a young child, the perception of compromised autonomy raises concern for moral injury. Although the reason for the injection or intravenous line is medically indicated, the action may be perceived as against the child's will. Logically, we know children will cry and object to many medical treatments, but obtaining consent from both the child and the parent is recommended whenever possible. Consent to treatment requires permission from the child's legal representative and, if possible, assent from the child (Tait & Hutchinson, 2018).

Other examples of breaches of patient autonomy include when a clinician follows a family's request to not disclose a terminal prognosis to an elderly patient, against their judgment. Or when a clinician, rushed for time, opts to choose prescribing a medication rather than give the more appropriate treatment of counseling. When a patient's advance directive is ignored in a critical situation, patient autonomy is compromised. Although the individual breaches at the time may seem small, the accumulation of such experiences that challenge clinicians' duty to respect patient autonomy may eventually lead to moral injury.

Nonmaleficence

The principle of nonmaleficence is captured by the Latin maxim, *primum non nocere:* "above all, do no harm." It has been estimated that medical error is the third leading cause of death in the United States (Makary & Daniel, 2016). While the potential to reduce these errors is debated, common preventable harms include medication adverse events, central

line infections, and thromboembolisms (Nabhan *et al.*, 2012). With increasing ability to treat patients comes increasing opportunity to harm patients as systems become more complex. Most clinicians are very aware and regularly reminded of these statistics; however, the seemingly futile efforts to try and reduce the incidence of these harms are troublesome. Moral injury may result when there are significant lapses in nonmaleficence, such as knowingly and routinely failing to follow safety protocols. Bureaucratic and administrative interference, well intended or not, can hamper efforts by physicians and nurses to decrease harm, leading to moral injury and a sense of powerlessness.

Moral distress and moral residue arise when individuals are confronted with situations where they cannot prevent harm or alleviate suffering, even though they intend to do good. For example, when a patient is harmed due to an innocent prescribing error of a medication, nonmaleficence is breached, albeit unintentionally. Or when rushed for time, thorough sterilization of equipment between uses is neglected. A nurse following an incorrect order from a physician, even though it is the physician's error, can breach the nurse's moral pillar of nonmaleficence. These experiences can impact one's conscience and create a lasting sense of moral conflict or guilt. However, while each individual incident does not necessarily imply moral injury, the accumulation of multiple instances can.

Beneficence

With the many opportunities to harm a patient in mind, we must also remember that patients come to clinicians for improvement or restoration of their health, which leads to the principle of beneficence. The commitment to helping others is the driving force amongst healthcare workers, and to accomplish this goal, there must be a net benefit over harm (Gillon, 1994). Decisions on diagnostic pathways, treatment plans, and societal policies all must balance the benefit versus harms, and these balances also must be made in the context of the patient's values.

Beneficence, when compromised, creates numerous conflicts in medicine that can result in moral injury. When the cost of proper medical care exceeds the ability of an individual patient to pay, beneficence can be compromised. Substantial moral injury may occur due to significant, unjustified lapses in beneficence, such as denying a life-saving treatment due to inability to pay.

Pharmaceutical pricing is a common cause of this moral compromise. For example, many patients with atrial fibrillation will benefit from changing their warfarin prescription to a newer, direct oral anticoagulant such as apixaban. However, the up-front price of the newer medication prohibits them from changing, even though the total financial cost of the newer medication is estimated to be lower due to fewer medical complications (Gupta *et al.*, 2018). Beyond the financial impact, the negative impact on the patient's health can be devastating. Compromising the principle of beneficence occurs when the patient cannot take the best medication because of financial limitations. Although the medical complications from the older medication will ultimately cost more money, the hard reality is that patients will take the cheaper medication because they cannot afford the up-front costs of the newer, better medication.

Additional examples include when a clinician chooses not to inform a patient about an expensive, non-covered treatment option, mistakenly assuming that the patient wouldn't be able to afford it. Or when a physician is forced to provide an inferior treatment due to a claim denial from the insurance company. Or when a nursing home director limits staff availability of pain medications for elderly patients to control waste and theft. As a result, patients routinely suffer in avoidable pain because adequate treatments are restricted. Again, while each isolated instance may not rise to the level of moral injury, the accumulated effect can be devastating on health care providers.

Social justice

The final pillar of bioethics is social justice. Justice demands that limited resources be distributed fairly, and that patients not be discriminated against due to any number of demographic variables such as race, religion, gender identity, sexual orientation, age, or cultural background. Moral injury occurs when these ideals conflict with the hard reality of medical care where discrimination does occur, primarily along socioeconomic lines.

These complex socioeconomic disparities cause moral injury because clinicians know what their patients need and find the economic barriers to needed care to be illogical, unnecessary, and capricious. They know that not getting that nursing home bed placement will result in a bad outcome, often at a much higher cost. They know that not getting a patient with a substance use disorder necessary treatment will ultimately cost more to society, although the health care plan may save money. They have seen first-hand the elderly family member decide they would rather die than leave a large medical bill for their surviving relatives. Witnessing these events regularly doesn't cause burnout; it causes moral injury.

Medical professionals working in medical systems and countries that rely on privately funded insurance may also experience a constant violation of the principle of social justice. For example, one study comparing a population with universal medical insurance found disparities in the care given to racial and ethnic minorities to decrease significantly or even eliminate (Chaudhary *et al.*, 2018). A similar study found that universal medical insurance ameliorated socioeconomic disparities in mortality (Veugelers & Yip, 2003). Medical professionals working in private insurance systems who know about and trust such research studies may experience a persistent low-grade violation of their bioethics. However, moral injury will likely occur when clinicians witness persistent, deep-rooted discrimination that leads to profoundly unequal treatment. This, over time, may progress to symptomatic moral injury. The primary means of addressing such issues would be meaningful involvement in improving the larger healthcare system.

Conclusion

Moral injury occurs when there is a significant disruption in an individual's sense of personal morality and capacity to behave in a just manner. It involves a complex interplay of

ethical, psychological, social, and spiritual aspects. While minor inconsistencies and unintentional errors are common, significant violations resulting in moral distress, failure, or injury are becoming intrinsic parts of the healthcare system. The prevention of these moral transgressions is accomplished by decreasing breaches of the four pillars of bioethics whenever possible.

The moral foundation of the healthcare system rests upon these four pillars of morality: patient autonomy, beneficence, nonmaleficence, and social justice. In healthcare providers that have dedicated their professional life to helping care for the sick, these pillars generally are very solid and resistant to insults. However, just like a large oak tree is felled after many swings of the axe, these pillars can fall with the accumulation of moral insults.

Healthcare organizations have an obligation to provide support for practitioners experiencing various levels of moral injury resulting from unavoidable adverse events. While such unavoidable harms are a reality of clinical care, practitioners should not have to bear the burden alone. Institutions must not only provide forums for open discussion, but also respond productively to clinician feedback. Improving the moral health in clinicians requires objective research leading to evidence-based interventions. The effects of education, peer support, and counseling on moral health needs further investigation. Perhaps most importantly, the effect of system-wide patient care improvements on the moral well-being of clinicians should be objectively examined and quantified.

Although this paper aims to provide an ethical framework, further empirical research is critical. Understanding moral transgressions is only the start of a necessary process to increase morality throughout the healthcare system. Research looking at new medical interventions for individuals alone is insufficient; the moral implications of costs, equitable distribution, and adverse side effects must also be addressed.

Data availability

No data are associated with this article.

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Open Peer Review

Current Peer Review Status: ✔ ?

Version 4

Reviewer Report 27 January 2024

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✔ **Lindsay B Carey**
Department of Public Health, School of Psychology and Public Health, La Trobe University, Melbourne, Vic, Australia

The revised Version provides a clearer understanding of MI and it's relevance to bioethics - however one needs to ask the question, "So what?". What if the decreasing of bioethical breaches does not occur? Or to ask the question another way: What is the effect/outcome upon health care staff and patients if one or more of the bioethical principles continue to be breached? Are the cosequences truely a matter of life and/or death? Or are the bioethical priniciples and the syndrome of moral injury just being utilized for the purposes of political/industrial exploitation? That is to say, it is important to make clear within the conclusion (or elsewhere), the practical consequences of serious adverse events and the breaching of bioethical principles - which can lead to moral distress/anxiety and, if not resolved, ultimately can lead to a moral injury that can result in suicidal ideation / suicide - which has already been noted within the research literature i.e., consider the reviews [ref-1,2]

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2. Jamieson N, Carey LB, Jamieson A, Maple M: Examining the Association Between Moral Injury and Suicidal Behavior in Military Populations: A Systematic Review.*J Relig Health*. 2023; **62** (6): 3904-3925 PubMed Abstract | Publisher Full Text

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 3

Reviewer Report 19 October 2023

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Jan Helge Solbakk
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I have had a thorough read of version 3 of this paper, and I have still doubts about this paper, and notably, for two additional reasons which I did not address while reading a previous version:

1. The authors seem to medicalize moral injury, by putting a diagnostic label on it. I advise the authors to make it explicit that moral injury cannot be reduced to a medical diagnosis because the phenomenon of moral injury extends beyond what can be captured in medical and psychological terms and for which a cure exists.

2. The examples of situations in the health care context that might cause moral injury the authors make use of are not convincing examples. More work needs to be done to identify suitable health care situations.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Moral philosophy and bioethics

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 20 Oct 2023

Thomas F Heston

Thank you for your comments. I believe I have addressed all recommendations and appreciate your time and effort reviewing our article.

Competing Interests: No competing interests were disclosed.

Version 2

Reviewer Report 29 September 2023

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Lindsay B Carey
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The authors seemed to have decided not to include a number of my comments, particularly about acknowledging MI being a bio-psycho-social-spiritual syndrome; fair enough, I can understand this as the health sector is only catching up to where the veteran sector has been for 20 years. However, I strongly advise that the authors include a reference to the recent review undertaken by Phoenix Trauma Centre (Jones *et al.*, 2022[1]) regarding various treatments for MI as the paragraph below sits awkwardly without supporting evidence/citation.

"The optimal treatment of moral injury remains unclear, just like the diagnosis of moral injury. Proposals to treat moral injury in medical professionals include participating in support groups, building personal character, and personal reflection by keeping a diary. The inclusion of standard treatments for post-traumatic stress disorder in veterans suffering from moral injury has also been proposed" (Jones *et al.*, 2022).

I do like the association with the bioethical principles - which has been done with multiple topics before, but valuable to have with regard to MI.

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1. Jones KA, Freijah I, Carey L, Carleton RN, et al.: Moral Injury, Chaplaincy and Mental Health Provider Approaches to Treatment: A Scoping Review.*J Relig Health*. 2022; **61** (2): 1051-1094
PubMed Abstract | Publisher Full Text

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Bioethics, Moral Injury

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 20 Oct 2023

Thomas F Heston

Thank you for your helpful comments. I believe that we have responded thoughtfully to your comments. We greatly appreciate your time and effort providing peer review.

Competing Interests: No competing interests were disclosed.

Version 1

Reviewer Report 13 July 2020

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Jan Helge Solbakk
Department of Health and Society, Centre for medical Ethics, University of Oslo, Oslo, Norway

This is a very short and well written paper. But the paper would have benefited from further substantiation by relating the concept of moral injury to the concepts of moral failure, moral residue and moral distress.

Here are some references the authors are advised to consult:

- Lisa Tessman, Moral distress in health care: when is it fitting? Medicine, Health Care and Philosophy (2020) 23:165–177 https://doi.org/10.1007/s11019-020-09942-7.[1]
- Boudreau, Tyler. 2011. The morally injured. The Massachusetts Review 52(3/4): 746–754.[2]
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In addition, I advice the authors to consult the literature on adverse events in health care that are impossible to predict or prevent and which may cause moral distress, burnout and moral injury. That is, the fact that less than 50% of all adverse events in health care are possible to predict and prevent (of which a significant minority causes permanent disability, 7%, or death, 7%), is a painful reminder of the prevalence of unavoidable normative ignorance in health care and the importance of learning to live through moral failure caused by such events. For this, see e.g:

- Rafter, N., Hickey, A., Condell, S. et al. (2015). Adverse events in health care: learning from mistakes. QJM: An International Journal of Medicine, 108, 4: 273–277, and De Vries, E.N., Ramrattan, M.A., Smorenburg, S.M. et al. (2008). The incidence and nature of in- hospital adverse events: a systematic review. Qual Saf Health Care,17: 216-223.[6]

Finally, the authors are advised to focus more on the problem of moral failure and injury among health care workers. In the present version of the paper the main focus is on the patient's experience of moral injury.

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Is the topic of the opinion article discussed accurately in the context of the current literature?
Partly

Are all factual statements correct and adequately supported by citations?
Yes

Are arguments sufficiently supported by evidence from the published literature?
Partly

Are the conclusions drawn balanced and justified on the basis of the presented arguments?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Bioethics

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 06 Sep 2023

Thomas F Heston

Thank you again for your time and effort in helping improve this article. I apologize for the delayed response, which was unavoidable due to a severe, prolonged illness. I believe this article remains relevant. I have attempted to fully address all of the issues raised about the different aspects of moral compromise, not just moral injury. You have made me think more deeply about this issue and I appreciate that. I am hopeful this revised version meets your approval so that it can be indexed, as this remains an important topic. As a clinician, I see a lot of focus on clinical trials and "evidence-based medicine" but the effect of these technological advances on our shared morality is only rarely discussed. This is an important topic. Thanks again.

Competing Interests: no competing interests

Reviewer Report 26 July 2019

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This is an innovative and valuable consideration/discussion of moral injury (MI) in light of the key bioethical principles - both of which are used to justify the political issue of employee burnout within the clinical context.

Given the current literature however, Shay's definition of MI (considered valuable but now too simplistic) which is used as the basis for this article, is no longer the dominant definition of moral injury since (for example) the work of Litz *et al.* (2009)[1], or Jinkerson (2016)[2], or Carey & Hodgson (2017).[3] It is important to note, that since Shay's definition, there have been at least 17 different definitions of Moral Injury (refer Hodgson & Carey, 2017[3]) and currently the most comprehensive synthesized version is that of Carey & Hodgson, 2018; *Frontiers in Psychiatry*[4] which needs to be noted by the authors of this article, indicating that there are other MI definitions but few utilize a holistic bio-psycho-social-spiritual paradigm to define or consider MI.

Most of the statements within the article are sufficiently supported; however, I think it important to cite Beauchamp and Childress (2013)[5] with regard to biomedical ethics and the bioethical principles (not just Beauchamp).

Further, it can be argued that the real issue of MI within the medical/clinical context (in light of the more complex definitions of MI) should actually be due to a clinician suffering "a trauma related syndrome caused by the physical, psychological, social and spiritual impact of grievous moral transgressions, or violations, of an individual's deeply-held moral beliefs and/or ethical standards due to: (i) an individual perpetrating, failing to prevent, bearing witness to, or learning about inhumane acts which result in the pain, suffering or death of others, and which fundamentally challenges the moral integrity of an individual, organization or community, and/or (ii) the subsequent experience and feelings of utter betrayal of what is right caused by trusted individuals who hold legitimate authority" (Carey & Hodgson, 2018).

It other words it can be argued that as a result of breaches of fundamental bioethical principles that "...grievous moral transgressions, or violations, of an individual's deeply-held moral beliefs and/or ethical standards" will occur, resulting in a moral injury (Carey & Hodgson, 2018, p. 2). Then it should be explained that "A moral injury can eventuate as a result of one or two types of occurrences, namely when (i) an individual perpetrates, fails to prevent, bears witness to, or learns about inhumane acts which result in the pain, suffering or death of others, and which fundamentally challenges the moral integrity of an individual, organization or community, and/or (ii) the subsequent moral injury experience and feelings of utter betrayal of what is right, caused

by trusted individuals who hold legitimate authority" (Carey & Hodgson, 2018, p.2).

To shift too far from such a definition/explanation would mean that it is not really a complex 'moral injury' at all - but rather a 'superficial' incident that conflicts with professional bioethics. Put simply, the more advanced / complex definitions of moral injury should be utilised and will actually co-align a lot easier with the bioethical principles.

The conclusions are somewhat justified on the basis of the presented arguments; however, it is somewhat of an assumption to conclude that ....a firm understanding of bioethics ....will prevent recurrent MI! This is doubtful - indeed t'would be like saying that a better understanding of bioethics will prevent the effects of witnessing a trauma related incident (e.g., a murder). Highly improbable!

There is also no evidence provided to indicate/justify that a better recognition of the connection between bioethics and MI will decrease burnout! Indeed one can speculate that better recognition might actually increase one's stress, and increase the chances of subsequent burnout! (Not decrease burnout!). The most one could argue (in the absence of solid evidence) would be that "a better understanding of the effects of breaching bioethical principles within the work place, and the possible correlation with experiencing a moral injury, may explain feelings of recurrent burnout"... but it certainly would NOT prevent MI nor unlikely to prevent injuries. The conclusion needs to be edited as well as adding a note for empirical research to be undertaken with regard to MI and clinician burnout in the clinical context.

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Is the topic of the opinion article discussed accurately in the context of the current literature?

Partly

Are all factual statements correct and adequately supported by citations?

Partly

Are arguments sufficiently supported by evidence from the published literature?

Partly

Are the conclusions drawn balanced and justified on the basis of the presented arguments?

Partly

Competing Interests: Reviewer is author of several articles relating to moral injury.

Reviewer Expertise: Bioethics, Moral Injury

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 26 Jul 2019

Thomas F Heston

I appreciate the comments from the reviewer and in general agree. In other groups outside of health care providers, moral injury is becoming more precisely defined. However, the definition and implications of moral injury in health care professionals currently remains vague. With this perspective paper, we aim to stimulate investigation into the relationship between a violation of well established bioethical principles and moral injury. We remain convinced that moral injury, both minor and large, regularly affects medical professionals, and that there most likely is a strong relationship to the four pillars of bioethics. Nevertheless, more research and investigation clearly is indicated. Again, the comments from the reviewer are thorough and greatly appreciated.

Competing Interests: No competing interests were disclosed.

Reviewer Response 27 Jul 2019

Lindsay B Carey

Dear Article Authors,

I concur with your "aim to stimulate investigation into the relationship between a violation of well established bioethical principles and moral injury" and "that moral injury.... regularly affects medical professionals, and that there most likely is a strong relationship between (breaches of) the four pillars of bioethics" and moral injury - Indeed this seems logical and most viable. However my concern is that, currently your understanding of MI "remains vague" and this is understandable because some researchers and even yourselves, have based their understanding of MI on a basic definition. Except for those who wish MI to remain vague/basic for their own purposes, the research regarding MI, demonstrates that MI is far more complex than originally conceived.

I think it is important to note that on the one hand you opt for a simple definition of MI, yet one of your own article statements aligns with more complex definitions: *"When a physician, nurse, or other health care provider participates in, or witnesses a violation of, one or more of these core principles, moral injury occurs"*. I am simply suggesting: (1) the correlation between violations of bioethical principles and a MI or a potential moral injury event (PMIE), seems logical and would unquestionably affect clinician morale, however any correlation between bioethical principles and MI requires a more complex definition of MI. (2) There is no need for another definition of MI specific to clinicians - this would simply muddy the

waters - there are already several comprehensive definitions (Litz et al, Jinkerson and a combination of Shays and others by Carey & Hodgson) as already noted in my earlier review - which are all based on empirical research/case studies. If there is no correlation with these more complex definitions, then perhaps it is not moral injury to which you are referring, but something entirely different.

To be sure however, I support your argument/logic about bioethical principles regularly being breached in the health care context which could result in a moral injury for clinicians, however MI is complex and therefore requires a more comprehensive definition - which in my view would actually support your investigation into the relationship between a violation of well established bioethical principles and moral injury.

Competing Interests: No competing interests were disclosed.

Author Response 06 Sep 2023

Thomas F Heston

Thank you again for your time and effort in helping improve this article. I apologize for the delayed response, which was unavoidable due to severe, prolonged illness. I believe this article remains relevant. I have attempted to fully address all of the issues raised. Thank you- the article is significantly improved. I am hopeful this meets your approval so that it can be indexed, as this remains an important topic.

Competing Interests: no competing interests

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